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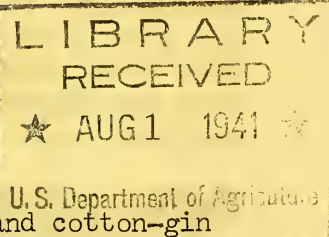
A.C.E. 98
O.P. No. 3351

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Chemistry and Engineering
Stoneville, Miss.

BETTER GINNING BY REPAIRING COTTON GINS

April 1941
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"Necessity", that hard-driving mother of invention and cotton-gin repairs, may also become the proud parent of "economical modernization" for the ginning establishment, and extend its spheres of usefulness to the community.

Quality of the ginned product, capacity and performance of the ginning outfit, and lowest possible cost of operation under given conditions are among the benefits resulting from the prompt and adequate repairing and conditioning of the ginning equipment.

From survey data obtained by the U. S. Cotton Ginning Laboratory from 500 gins in the Cotton Belt, it appears that 28 percent of all the gins surveyed needed saw repairs or replacements, and that about 45 percent were operating at or below 500 revolutions per minute. Hence, repairing saws appears to give an excellent chance for safely stepping up saw speeds to 600 revolutions per minute. About 37 percent of all brush gins surveyed needed brush repairs; 14 percent of all the air-blast gins needed nozzle repairs; and 31 percent of both types required rib repairs as well.

The use of good gin saws in contrast with saws in poor condition has shown a gain of as much as \$2.00 per bale with long staple cottons as well as an average decrease in ginning time of 30 percent on long staple and 20 percent on short staple cottons. Losses in the monetary value of the ginned lint from using brushes in poor condition have ranged, on the average, from 80 cents on short staples to as much as \$1.50 with damp long staple cottons; bale value losses from poor air-blast nozzles improperly operated in tests averaged \$1.00 per bale on long staple and 80 cents on short staple cotton ginned in a moist condition. These are but a few examples.

Cotton Handling

Opportunities for power saving and simplified pneumatic handling of seed cotton in both storage and ginning outfits are numerous. For delivering seed cotton to storage bins, it is possible with carefully planned piping and fans to perform the work with approximately 10 horsepower from either an electric motor or internal combustion engine. Essentials of economical pneumatic cotton handling equipment are relatively small pipe, simplicity of layout, use of Rambert-type fans in lieu of combined fan and separator devices, and prevention of air leaks in the entire system.

The improved cone-type Rambert fan developed by the U. S. Cotton Ginning Laboratory for delivery of seed cotton to the ginning equipment usually operates at from 1,200 to 1,750 revolutions per minute depending

upon the friction losses and resistance pressures within the piping, and delivers approximately 3,300 cubic feet of air per minute under these conditions with from 10 to 22 horsepower. To save further power and simplify the ginning equipment, belt distributors are now being frequently replaced with screw conveyor distributors. In the repair of existing belt distributors the alignment of the distributor box is very important to prevent fires and undue wear of the pulleys.

Cleaners, Extractors, Driers, and Feeders

The repair and overhauling of cleaners, extractors, and feeders may give the ginner a long-sought opportunity to improve their performance greatly by the addition of a stub tower drier or application of heated air to existing cleaning equipment. Airline cleaners can be converted into airline driers at low cost; some forms of extractor-cleaner-feeders which already have drying connections can be cheaply piped up to new sources of heat, and replacement of old types of feeders with new cleaning-extracting feeders may aid in a sweeping simplification of the entire ginning outfit and a reduction in power along with it. The possible application of cotton driers and the suitability of converting the older models into the latest forms by simple changes are surprisingly many.

Gin Stands

The opportunities today for getting additional years of service from old gin stands appear better than ever before. Self-aligning ball bearings are available for eliminating vibration, lubrication and operation trouble. Speeding up the saws and refilling the cylinders with saws having improved forms of teeth contribute toward greater lint turnout and capacity and a better quality of sample. Even brush repairs now available from the factories and independent sources are in a number of ways superior to those of 10 years ago, and the improvements which have occurred in air-blast gins are often applicable to earlier models. To attain loose-roll ginning with satisfactory capacity should be the objective in gin stand repairs and the modernizing of gin brush and rib assemblies. Replacement of older forms of huller ribs with latest types is worthwhile in many instances. Special repair of ribs, seed boards, rib rails, and other collateral parts have recently placed many discarded gin stands back into the line of excellent service. The doffing systems of both the brush and air-blast gins are readily repaired and in older forms of gin stands can be improved by metal covers and other improvements. New types of drives and instruments will pay a direct return on the investment.

Bearings, Belts, and Pulleys

The millwright work in a cotton gin can become the pride of the establishment. There are so many possibilities for the use of stock V-belts with flatfaced large drivers and grooved driven pulleys that scarcely a gin cannot cut out some troublesome drive and make a better substitute. Even right angle drives and quarter turns with V-belts on relatively short centers can be used to remove previously complicated and troublesome drives.

Pure Seed

The regular repairs to the screw conveyors and distributors in cotton gins bring up questions for bettering the seed handling methods. Two-story gins can have hinged bottoms on their seed troughs to give quick clean-out,

and simple arrangements of existing drive belts can often be made so that the conveyor may be reversed for delivery of pure seed to a sacker at one end of the trough or to the mill run blower at the other end. Economical methods of insuring pure seed handling are endless belts and improved blowing devices. The whole question of seed handling also ties into the latest demands from the farmers for combined delinting and chemical treatment which in many communities is proving profitable to the ginner and farmer alike. Some ginner have made use of 106-saw delinters of the type recently discarded from modernized oil mills and are able to delint about two tons of seed per day with power requirements of only 10 horsepower per delinter stand.

Lint-Handling Systems

Repair, simplification and improvements in the gin flues, lint flues, condensers, and their component parts lead toward more uniform handling and better packaging of the ginned cotton. Improved accessibility is often obtained by very simple methods; big-ended and rolling bales are likewise generally put out of the picture by simple alterations in the position of lint flue deflector and in the speed of kickers; and changes in speed of the condenser drum often remedy "backlash" and attendant troubles.

Painting and Appearance

Nothing affects the public more favorably in its contacts with the cotton gin than neat, trim, and clean appearances alike in the buildings, machinery, and premises. Better doors and windows, better stairs and platforms, all help toward safety; and wherever the modern light-weight steel stairs can replace the shaky wooden ones so frequently found in gins, such safety improvements have counted heavily in the public eye.

Care During Idle Season

In addition to the necessary cleanliness, painting, and care of machinery, stout buildings with metal sheeting, strong doors, and good padlocks will keep portable parts where they belong and intruders where they also belong. Opportunity is knocking at the door of the ginner who takes advantage of his repair season to make it yield a crop of modernized improvements at low cost.

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